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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,965	10/30/2003	Paul E. Keller	50005-158	7601

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EXAMINER	
ALSOMIRI, ISAM A	
ART UNIT	**PAPER NUMBER**
3662	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/697,965	KELLER ET AL.	
	Examiner	Art Unit	
	Isam Alsomiri	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-31* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *120106*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-7, 9-21, 24-26, and 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Keller et al "Privacy algorithm for Cylindrical Holographic Weapons Surveillance System".

Referring to claims 1, 9, 17, 25, 29, and 31, Keller teaches an array (Abstract line 6) operable to interrogate a person with electromagnetic radiation at one or more frequencies in a range of about 12-33 GHz, which reads on "200 MHz to about 1 THz"; and a processing subsystem coupled to the array, the processing subsystem being operable to provide a neural network including a first set of inputs and a second set of inputs, the first set of inputs being arranged to receive data corresponding to a map of returned electromagnetic radiation intensity along a surface beneath clothing of the person, the second set of inputs being arranged to receive other data corresponding to a map of depth along the surface, the neural network being effective to evaluate if one or more objects suspected of being at least one of contraband or a potential security threat as a function of the map of intensity (inherent by creating image data) and the map of depth are concealed by the person and provide one or more corresponding outputs (see page 2 and page 5). Further, it is clear that Keller teaches using a

processing system that includes the neural network, and it is clear that Keller teaches 360° image depth information "data"; therefore, it is inherent that the neural network must "inherent" include the two inputs for the image "intensity", and the range "depth" to distinguish between skin and other features as explained in page 2.

Referring to claims 2, 28, Keller teaches the adaptively processing (neural network) operates with a map of surface depth difference to determine if the man-made object is being carried by the person as the function of the depth along the surface (see page 3).

Referring to claims 4, Keller inherently teaches comparing a first image frame data set to a second image frame data set to identify overlapping portion of the frames (see page 3).

Referring to claims 5, Keller teaches the object is at least one weapon (see Abstract).

Referring to claims 6, Keller teaches irradiating the person with an electromagnetic radiation output from a transducer array; and displaying relative location of the man-made object on a image representative of the person (Abstract, page 1).

Referring to claims 7, Keller teaches the adaptively processing is performed for each of a number of image portions, the image portions each corresponding to a group of image pixels (page 3 lines 13-15).

Referring to claims 13, Keller teaches displaying relative location of the concealed object on a image representative of the person (Abstract, page 1, page 3)

Referring to claims 14, Keller teaches the interrogating includes scanning the person in a portal at a security checkpoint with incident electromagnetic radiation and said establishing includes generating image data corresponding to a number of cylindrical images (see Abstract, page 1).

Referring to claims 15, Keller teaches generating information corresponding to one or more cylindrical images of the person (page 1).

Referring to claims 16, Keller teaches adaptively processing a spatial frequency representation corresponding to at least a portion of an image of the person (page 3 right col. last paragraph).

Referring to claim 26, Sheen teaches the device is in the form of a processor-readable memory and the logic is in the form of a number of instructions stored in the memory (page 5).

Referring to claim 10, Keller teaches at least one morphological filters to image output data from the neural network (see figure 1 page 2); and comparing a first neural network image output for a first image frame to a second neural network image output for a second image frame (page 3 lines 13-15).

Referring to claims 11, 17, 19, Keller teaches evaluating each of a number of different image data portions with the neural network to determine if the concealed object is present (page 3 lines 13-15), the image data portions each corresponding to a different group of image pixels (inherent), the data representative of the map of intensity corresponding to a two-dimensional map of image pixel intensity; calculating a two-dimensional map of pixel range as a function of temporal information determined in

relation to said irradiating and said detecting; and determining the data representative of the map of depth in accordance with depth difference based on the two-dimensional map of pixel range (page 1-2 and 5).

Referring to claims 12, Keller teaches displaying relative location of the concealed object on a image representative of the person (page 3 right col.).

Referring to claims 18, Keller teaches the neural network is of a multilayer perceptron type (page 3 lines 1-2).

Referring to claims 20, Keller teaches a display device responsive to the one or more outputs to provide at least one image if presence of the one or more objects is indicated (page 3 right col.).

Referring to claims 21, 30, it is inherent that Keller teaches the processing subsystem includes means for filtering image information (Page 2 right column).

Referring to claims 24, Keller teaches the processing subsystem is further operable to generate image data corresponding to a number of cylindrical images of the person (page 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 27 is rejected under 35 U.S.C. 103(a) as obvious over Keller.

Referring to claim 27, it's inherent the device includes one or more parts of a computer network and the logic is encoded in one or more signals for transmission over the computer network. However, even if Keller does not teach the computer network, computer networks are very well known in security checkpoints and it would have been obvious to modify Keller's system to include the computer network to monitor one or multiple checkpoints from different places.

Claims 22-23 is rejected under 35 U.S.C. 103(a) as obvious over Keller view of Yukl US006057761A.

Referring to claims 22-23, Keller teaches using an array to illuminate a person at a security checkpoint (page 1), but is silent about having a platform proximate to said array to support the person and a motor to move at least one of the array and the platform relative to another of the array and the platform to perform a security scan of the person (see figure 2). Yukl discloses in figure 1 a similar system including the support and two arrays. It would have been obvious to modify Keller's system to include the support and the two arrays for faster 360° scan of a person.

Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keller in view of Ockman US 20020150304A1.

Referring to claim 3, Keller teaches the morphological filter (see figure 1, page 2). Keller is silent about using a median filter. Ockman teaches using morphological filters

implemented as median filter. Therefore, morphological filters read on the claimed median filter (see [0040]). It would have been obvious to modify the combination to further include the morphological filters to filter out the unwanted objects or signals.

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed December 1, 2006 have been fully considered but they are not persuasive. Regarding claims 1-31, applicant argues "There is no indication on page 2 of Keller that the processing performed determines if a man-made object suspected to be one or more of contraband or a potential security threat is being carried by the person "as a function of the intensity along the surface and the depth along the surface." Specifically, there is no indication in Keller that both the "intensity along the surface" and the "depth along the surface" are necessarily used in producing the edge detection results shown in FIGS. 1 (b) and 1 (d). Instead, Keller is silent as to the specifics of the edge and gradient detection algorithms". *In response*: Keller teaches an imaging system to form "3-D volumetric imagery that provides high-resolution depth information" (see page 2); this clearly teaches the claimed map of electromagnetic radiation along the surface and depth along the surface; what is clearly inherent is the

intensity, since the system is an imaging system, each pixel in this imaging system has an amount of intensity; therefore, the same 3-D volumetric imagery is also a map of intensity, even if the intensity is the same along the entire 3-D volumetric image. Further, applicant argues that "the neural networks referenced in Keller also do not indicate that they can determine if a man-made object suspected to be one or more of contraband or a potential security threat is being carried by the person as a function of "the intensity along the surface and the depth along the surface." In particular, the Keller article refers to three types or uses of neural networks: (1) a multi-layer perceptron artificial neural network (ANN) used to detect plastic textures; (2) a pulse coupled neural network (PCNN) used to detect any man-made objects; and (3) an artificial neural network trained on spatial frequencies to detect any man-made object". *In response*: as admitted by the applicant Keller teaches the use of neural network. The first type of neural network is the (multi-layer perceptron ANN) which is used to detect plastics textures; the multi-layer perceptron ANN was developed and trained with the backpropagation of error algorithm on images with plastic objects(see page 3 Keller). Since plastic reflect or absorb electromagnetic radiation differently than the human body (see page 3 Keller), the images of the plastic objects or the detection of plastic textures in holographic imagery must be a function (at least in part) of the image intensity variation that define the shape and textures of the plastic. Therefore, the multi-layer ANN reads the broad language of "neural network" or "adaptive processing" as a function of the intensity along the surface and depth along the surface.

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isam Alsomiri whose telephone number is 571-272-6970. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Isam Alsomiri

February 19, 2007

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